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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/848,739 | 05/19/2004 | David M. Albert | MYKR1360-1 | 7326 |

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EXAMINER

OEN, WILLIAM L

ART UNIT PAPER NUMBER

2855

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/848,739 | Applicant(s) ALBERT ET AL. | |
| | Examiner William L. Oen | Art Unit 2855 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) 1-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-36, 38-45 and 47-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of claims 30-54 in the reply filed on 04/13/2005 is acknowledged. No ground(s) for the traversal is articulated. The requirement is still deemed proper and is therefore made FINAL.

Specification

The title of the invention is not descriptive for the elected claims. A new title is required that is clearly indicative of the invention to which the claims are directed, specifically for the *most comprehensive claim* (note that independent claim 30 makes no mention of features in the current title).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 30, 33 and 51-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Orth et al. (U.S. Patent No. 4,818,994).

Orth et al. teach, for example in Figure 1 and in columns 2-6, all of the essential features of the claimed method for digitally controlling a sensor system including the

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receiving and converting of an analog sensor signal (herein a capacitive differential pressure sensor signal) into a digital sensor signal (via detector module 16) and the processing of the digital signal to provide an output signal indicating a measured parameter (herein pressure) corresponding to the sensor signal.

As to claim 33, it is noted that the analog sensor signal is produced by a *capacitive* differential pressure sensor (gauge).

As to claims 51-54, it is noted that Orth et al. explicitly teach linearizing the digital sensor signal (see, e.g., column 2, lines 45 et seq. and column 3 generally) using linearization expressions based on values (characterization coefficients) stored in the non-volatile memory EEPROM 38.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 30 and 33-36, 38-45 and 47-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orth et al. (U.S. Patent No. 4,818,994).

Orth et al. teach, for example in Figure 1 and in columns 2-6, all of the essential features of the claimed method for digitally controlling a sensor system including the receiving and converting of an analog sensor signal (herein a capacitive differential pressure sensor signal) into a digital sensor signal (via detector module 16) and the processing of the digital signal to provide an output signal indicating a measured parameter (herein pressure) corresponding to the sensor signal.

As to claim 33, it is noted that the analog sensor signal is produced by a *capacitive* differential pressure sensor (gauge).

As to claims 34-36 and 38-41, it noted that, as part of the signal processing, Orth et al. explicitly teach the linearization of the signals and sending (writing) these linearized signals to the D/A converter, as well as the calibration via a set of calibration constants/calibration data. It is admittedly noted that Orth et al do not, however,

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explicitly teach the performing of iterations of a control loop in a kernel module for high and low priority tasks, per se. Nonetheless, Orth et al do teach (see, e.g., column 3 lines 27 et seq.) controlling the analog loop current to provide an analog signal representative of sensed pressure or alternatively generating the loop and serial digital output signal, and other means of processing the signal to perform *both* high and low priority tasks (e.g., temperature correction/compensation). In view of this teaching and because it would have been a simple and expedient modification to have done so, it is considered to have been obvious to one having ordinary skill in the art at the time of the invention to have performed iterations of a control loop in a kernel module for high and low priority tasks in the system of Orth et al., if desired.

As to claim 42, it is noted that although Orth do not explicitly teach the method step of automatic calibration using calibration data imported from a calibration stand, it would have been a mere obvious design choice to have performed the calibration step in this manner.

As to claims 43-44 and 47-49, it is noted that Orth do not explicitly teach the method steps of performing automatic zero adjustment, indeed teaches a non-zeroing type of A/D ("C/D") converter. Nevertheless, because such zero adjustments are notoriously well known and widely used in the measuring art, and because Orth does explicitly address temperature compensation, it is considered to have been a mere obvious design choice to have included the same in the method of Orth et al, if desired.

As to claims 51-54, it is noted that Orth et al. explicitly teach linearizing the digital sensor signal (see, e.g., column 2, lines 45 et seq and column 3 generally) using

linearization expressions based on values (characterization coefficients) stored in the non-volatile memory EEPROM 38.

Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orth et al as applied to claims 30 and 33-36, 38-45 and 47-54 above, and further in view of Choi et al. (U.S. Patent No. 6,289,259).

As to claims 31 and 32, it is noted that Orth et al. do not explicitly teach a digital signal processor embedded in the sensor. Choi et al. explicitly teach embedded digital sensors in an injection molding machine wherein a microcontroller is coupled to a system control processor. In view of this teaching by Choi et al., and because embedded sensors have become routine in the art, it would have been obvious to one having ordinary skill in the art at the time of the invention to have embedded the employed in the method of Orth et al. an *embedded* microcontroller in their sensor, if desired. Orth et al. and Choi et al. are combinable because each invention includes the analog and digital signal processing for sensor signals.

Allowable Subject Matter

Claim 37 and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William L. Oen whose telephone number is 571-272-2186. The examiner can normally be reached on 10:30 am - 9:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William L Oen
Primary Examiner
Art Unit 2855

WL Oen
April 26, 2005